IN THE CLAIMS:

Please amend the claims as indicated below.

5 1.   (Cancelled)

2   (Previously Presented) The method of claim 4, further comprising the step of selecting motifs of the concatenated motifs and the first motifs for removal based on at least one predetermined criteria.

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3   (Cancelled)

4.   (Currently Amended) A method for pattern discovery on an input sequence comprising a plurality of elements, the method comprising the steps of:

15   determining a plurality of first motifs from the input sequence, each first motif comprising at least one element from the input sequence;

concatenating each of the plurality of first motifs with another of the plurality of first motifs to create a plurality of concatenated motifs;

removing one or more selected motifs of the concatenated motifs and the

20 first motifs, wherein the step of removing comprises removing suffix motifs in the concatenated motifs and the first motifs, and wherein each motif in the concatenated motifs and the first motifs has an associated location list, and wherein the step of removing suffix motifs comprises the steps of:

offsetting each location list for each of the motifs in the concatenated

25 motifs and the first motifs to zero;

checking each location list for each of the motifs in the concatenated motifs and the first motifs to determine location lists that are the same; ~~and~~

augmenting motifs that have the same location list to create at least one new motif; and

30   providing at least said at least one new motif as an output to a user.

wherein said method is performed by a processor.

5   (Previously Presented) The method of claim 4, wherein the step of removing comprises removing redundant motifs in the concatenated motifs and the first motifs.

6.   (Original) The method of claim 5, wherein each motif in the concatenated motifs and the first motifs has an associated location list, and wherein the step of removing redundant motifs comprises the steps of:

          determining any motif whose location list is a union of other location lists associated with motifs in the concatenated motifs and the first motifs; and

          removing any motif whose location list is a union of other location lists associated with motifs in the concatenated motifs and the first motifs.

7.   (Previously Presented) The method of claim 4, wherein the step of removing comprises removing selected motifs in the concatenated motifs and the first motifs if the selected motifs do not occur in the concatenated motifs and the first motifs more than a predetermined number of times.

8.   (Previously Presented) The method of claim 4, further comprising the step of:

          performing the steps of concatenating and removing until no new motifs are generated by said concatenating and removing steps.

9   (Previously Presented) The method of claim 4, wherein:
each first motif is a solid element motif;
the step of determining a plurality of first motifs comprises the steps of:

          determining a plurality of solid element motifs, each solid element motif comprising at least one element from the input sequence; and

          creating a plurality of second motifs by adding at least one don't care

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element to each of the solid element motifs;

the step of concatenating further comprises the steps of:

selecting a motif from the solid element and second motifs;

concatenating the selected motif with another selected motif from the solid

5   element and second motifs; and

performing the process of selecting and concatenating until each motif from the solid element and second motifs has been concatenated with another motif from the solid element and second motifs;

the method of claim 4 further comprises the steps of:

10   trimming the solid element, second, and concatenated motifs; and

performing the steps of concatenating and trimming until no new motifs are generated by said concatenating and trimming steps.

10.   (Original) The method of claim 9, further comprising the step of creating
15 flexible motifs from the first motifs.

11.   (Previously Presented) The method of claim 4, further comprising the step of creating flexible motifs from the first motifs.

20 12.   (Previously Presented) The method of claim 4, wherein each element of the input sequence comprises a character from an alphabet.

13.   (Previously Presented) The method of claim 4, wherein at least one element of the input sequence comprises a set of characters.

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14.   (Previously Presented) The method of claim 4, wherein each element of the input sequence comprises a real number.

15.   (Previously Presented) The method of claim 8, wherein one or more
30 remaining motifs of the concatenated motifs and the first motifs form a basis set of motifs

and wherein the method further comprises the steps of:

determining a plurality of motif sets from a plurality of selected motifs, the selected motifs selected from a plurality of basis motifs, wherein the plurality of selected motifs all begin with a selected element;

5   determining unique intersection sets from the plurality of motif sets; and

determining redundant motifs from the intersection sets and the motif sets

16.   (Currently Amended) A computer system for pattern discovery on an input sequence comprising a plurality of elements, comprising:

10   a memory that stores computer-readable code;

a processor operatively coupled to the memory, the processor configured to implement the computer-readable code, the computer-readable code configured to:

determine a plurality of first motifs from the input sequence, each first motif comprising at least one element from the input sequence;

15   concatenate each of the plurality of first motifs with another of the plurality of first motifs to create a plurality of concatenated motifs; and

remove one or more selected motifs of the concatenated motifs and the first motifs, wherein the removal comprises removing suffix motifs in the concatenated motifs and the first motifs, and wherein each motif in the concatenated motifs and the

20   first motifs has an associated location list, and wherein the step of removing suffix motifs comprises the steps of:

offsetting each location list for each of the motifs in the concatenated motifs and the first motifs to zero;

checking each location list for each of the motifs in the concatenated

25   motifs and the first motifs to determine location lists that are the same; and

augmenting motifs that have the same location list to create at least one new motif; and

providing at least said at least one new motif as an output to a user.

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17.　　　　(Currently Amended) An article of manufacture for pattern discovery on an input sequence comprising a plurality of elements, comprising:

　　　　a computer readable medium having computer-readable code means embodied thereon, the computer-readable program code means comprising:

5　　　　a step to determine a plurality of first motifs from the input sequence, each first motif comprising at least one element from the input sequence;

　　　　a step to concatenate each of the plurality of first motifs with another of the plurality of first motifs to create a plurality of concatenated motifs; and

　　　　a step to remove one or more selected motifs from the concatenated motifs 10　　and the first motifs, wherein the step of removing comprises removing suffix motifs in the concatenated motifs and the first motifs, and wherein each motif in the concatenated motifs and the first motifs has an associated location list, and wherein the step of removing suffix motifs comprises the steps of:

　　　　offsetting each location list for each of the motifs in the concatenated 15　　motifs and the first motifs to zero;

　　　　checking each location list for each of the motifs in the concatenated motifs and the first motifs to determine location lists that are the same; ~~and~~

　　　　augmenting motifs that have the same location list to create at least one new motif; and

20　　　　providing at least said at least one new motif as an output to a user.

18-26.　　　　(Cancelled)